

Longevity of Polyamide and Polyester Slackline Webbing exposed to the elements

Thomas Buckingham¹, Philipp Gesing¹, Walter Siebert²

¹ International Slackline Association, Bern, Switzerland

² Siebert Research, Vienna, Austria

thomas@slacklineinternational.org

Keywords: slackline; highline; UV; ultra-violet; webbing; polyamide; polyester

1. Project description

UV radiation affects man-made and natural fibres by degrading their chemical structure. Webbing made from polyamide, polyester or other artificial fibres are used for several outdoor activities, including mountaineering, climbing, rescue activities and most notably, slacklining. In these activities, the lives of the practitioners are dependent on the integrity and reliability of their equipment. Thus, evaluating the effect that UV degradation has on such equipment is paramount to the safety of the sport itself.

So far, most studies have concentrated their efforts on single fibres of different materials. And while their response to UV exposure is relatively well understood and researched, there is not much work publicly available that is focused on entire products (e.g. ropes and webbings). The ISA (International Slackline Association) in collaboration with the UIAA (International Climbing and Mountaineering Federation) has set out to investigate the effects of UV radiation on slackline webbing specifically.

The Jungfrauoch Research Station offers a perfect venue for installing an array of frames with different webbing samples on them for long-term weathering studies. Not only is the exposure rate and intensity uniquely high due to the altitude, but it is also measured by the various weather observations done at the station.



Figure 1. The frames that have been mounted underneath the research station with the different webbing samples.

For this project 7 different types of slackline webbing have been chosen (4 made from polyamide and 3 made from polyester). They have been selected in a way to represent the variety of webbings that are currently available on the market and used by the slackline community.

Three samples of each webbing are collected at different time intervals (0, 14, 28, 56, .. days of exposure) and then break-tested in Vienna by Siebert Research in accordance with the ISA:41 slackline webbing standard.

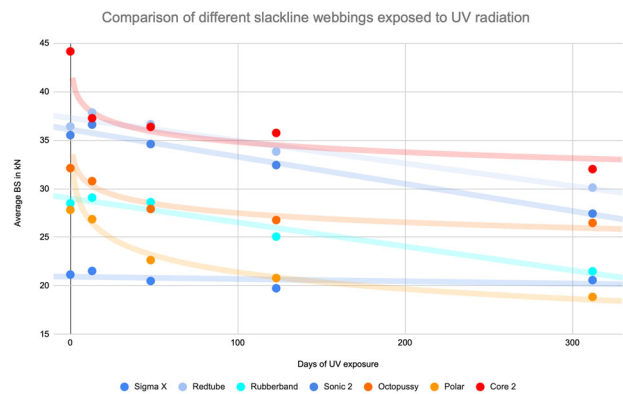


Figure 2. Preliminary results of the first samples that have been collected. The polyamide webbings are blue, the polyester webbings are orange.

In a second step, some of the samples will be further analysed at the pH2LLC lab (Environmental, Health & Safety, Microscopy, Materials Science & Forensic Engineering) with different optical methods. Additionally, we plan to conduct a comparative study with the SPORTS LABS accelerated weathering laboratory to further quantify the effects UV exposure has on slackline equipment.

Address

International Slackline Association (ISA)
c/o Swiss Alpine-Club SAC
Postfach
Monbijoustrasse 61
CH-3000 Bern 14
Switzerland

Contacts

Thomas Buckingham
Tel.: +41 79 514 13 36
e-mail: thomas@slacklineinternational.org